CENTER FOR BEAM PHYSICS
SPECIAL SEMINAR

"Synchronized Chaos: Stability and Pattern Formation"

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Albert Ghiorso Conference Room (71-264), LBNL
*** Note special day ***
••• *Refreshments served at 10:20 AM* •••

Abstract: There is lot of current interest in the study of coupled identical maps and differential equations, especially in the context of synchronization. We obtain stability bounds on synchronized chaos for both symmetrically coupled systems and non-symmetric systems. These bounds extend previously available results. Finally, we consider coupled dynamical systems where each system is coupled to P neighboring systems. In the Fourier space, the dynamics reduces to the evolution of independent Fourier modes. We derive an explicit relation between the Fourier modes and the coupling strengths. Using this relation, we demonstrate that generalized Turing patterns that emerge can be selected by appropriately choosing the coupling strengths.

Biographical data and research interests: Govindan Rangarajan ("Raj") obtained his Ph.D. in physics at the University of Maryland in 1990. Following a position at LBNL (1990-92), he joined the Indian Institute of Science, where he is now an Associate Professor. He has been elected Fellow of the National Academy of Sciences (India), and is a Homi Bhabha Fellow in Science. His research interests include nonlinear dynamics, stochastic processes, and time series analysis.